## Scene of the Tatar Rising

The Transcaucasus a Region Full of Interest.

There is perhaps no region of the earth and not always friendly races met on neutral that carries with it greater interest for the white races than that part of the Russian Empire called the Zakavkas or Transcaucasus. It was the cradle of a large section of the races that now inhabit Europe, and the pathway for some of the migrations from the south and center of Asia of other races that had their place in history, but have disappeared, leaving hardly a trace

There is sarcely a square mile in the region between the Black Sea and the Caspian south of the great chain of the Caucasus that has not some historical interest or that, if excavations were made, would not reveal some record of ancient civilization. The country about Mount Ararat is particularly rich in such hidden remains. Some day they will well repay the explorer and student of ancient times; but heretofore, owing to the jealousy of the Russian Government and the unsettled condition of the population generally, the risks attending research have been too great to tempt any but a few transient travelers.

It is only of recent years and in consequence of the great development of the Baku oil industry that civilized travel has been possible in the Transcaucasus. Outside of Batum, Tiflis and Baku, the hotels were hardly habitable.

The ordinary globe trotter, however much he may rough it in the day time, wants at least a comfortable meal and a clean bed to finish the day. But such things are not to be found off the beaten line of travel, which for 99 per cent. of the Americans and Europeans having business in the middle East is the railway from

This the traveler going east takes at Batum, and it may be safely said that nowhere else in the world will a day journey so richly repay the loss of time. Skirting the shore of the Black Sea at the foot of the mountains of Lazistan, whose inhabitants gave so much trouble to the Turkish Government after Batum had been adjudged to Russia by the Berlin Congress in 1878, the railway runs in a northerly direction for some thirty miles, when it curves to the eastward till it reaches Samtredi, thirty miles further on, which is the junction where it meets the line from Poti, a port about forty miles north of Fatum.

From Samtredi the railway winds up the valley of the Rion until it meets the low range of mountains that connects the greater with the lesser chain to the south at Suram, about 120 miles from Patum. Up to 1891 the railway surmounted this obstacle by a series of zigzags, but in that year the Suram tunnel, about five miles long, was completed, and saved much time on the journey to Tiflis, about one-third of the way to Paku. This tunnel was pierced mostly by Italian labor under the superin-

tendence of German engineers. It is not until the line emerges from this tunnel into the broad valley of the Kour River, the Cyrus of antiquity, that a full view of the Great Chain is obtained, but from the point where it first bursts on the view with its towering snowclad peaks to where the line approaches the Caspian, where it turns northeast to Baku, the traveler may enjoy a continuous panorama of the grandest scenery in the world from the window of his car for nearly 400 miles of

not too fast traveling This Transcaucasus railway is the property of the Russian Government, and a most profitable one. The traffic, almost wholly oil and machinery used in oil production, is heavy, and the number of oil tank cars in use some years ago was more than 28,000.

The profits of the road one year amounted to nearly \$5,000,000, and with the available funds thus placed at the disposal of the Government branch lines have been built from the main line near Tiflis through the picturesque Delijan defile to Alexandropol, south of the Lesser Chain, and from there to the fortress of Kars to the westward. and to Erivan to the southeast, from where a line is being constructed to Julfa on the Araxes River, which there forms the boundary between Russia and Persia. The intention is later to construct a line from Julfa to Tabriz in Persia, and ultimately from there to Teheran, the capital.

Throughout the Transcaucasus the travel by road is good and enjoyable and cheap. Ordinary passengers as a rule use the telega. with two or three horses, according to the grades to be ascended. The distance between the post stations, usually eighteen or twenty versts, is done at a steady trot As the telega is without springs, a sub-

stitute is provided in the shape of a quantity of hay, which afterward serves to feed the team. This is covered with a mattress on which one may sit or recline at full

length if so disposed. For those who desire more luxurious vehicles carriages called pytones, a variation of phætons, with hoods, can be obtained without difficulty and at a moderate price. The post houses, or "stancias," are without any accommodation for travelers except the ever present samovar and rough wooden tables and benches, so that a trayeler once started generally tries to push through to the journey's end without any more delay than is necessary to change

horses and vehicles. Of the cities of the Transcaucasus the manent seat of government. It is connected with Vladikavkaz, on the north side of the Great Chain, by a fine military road unsurpassed for the grandeur and beauty of its scenery.

The population of Tiflis is very mixed. the officials being for the most part Rusas have been admitted to a share in the ad-Loris Melikoff; Lazareff, the captor of Erpaign in Asia in which Mouklar Pasha and his army were routed by an inferior

In later times Georgians began to replace the Armenians, Prince Tchaftchawadse the trout as game as any in the world. and Gen. Amelachwari, just reported dead, being the most prominent. The civil population comprised many races, Georgians, Armenians, Jews, Tatars, Persians, Circassians, Russians, and others of the mountain tribes such as the Lazes and Turks from the south and southwest. Society was consequently limited to official receptions at which the members of the various | the early history of the country and the lians, explorers and sportsmen.

Of recent years educated and intelligent men among the Georgians and Armenians, who form the majority of the indigenous races, began to see the necessity of coming together, and it was the fear that some day it might be faced by a Caucasian national sentiment that first caused the Russian Government to recall the Grand Duke Michael, brother of Emperor Alexander II.. from the lieutenancy of the Caucasus. which he had held for many years. He was accused of aspiring to the kingship of the Causasus, but there was no justification for the charge, and the events of the present time show how difficult would be an attempt on the part of any one to bring about such cohesion among the heterogeneous races inhabiting the country as would enable him o organize them as a nation capable of naintaining its independence.

In the matter of education the Armenians easily took the lead of all the others both in the number of their schools and in the results of their training, and it is for that reason that they have incurred the hatred and persecution of the Russian administration of late years. Such education as there was among the Georgians was chiefly in the Armenian high schools in which the beginning of a Caucasian national spirit began to be formed, and led a year or two ago to their complete russification in order o prevent the idea from spreading.

The frivolity of the Georgian character, also, was more or less of an obstacle to close cooperation with the Armenians, the one being extravagant and happy-golucky, the other serious and thrifty. In territorial divisions of the country by nationalities the Georgians hold the northwest of the Transcaucasus from the Black Sea to Tiflis and a short distance to the eastward The northeast is largely inhabited by Tatars, Circassians and Armenians, with Persians intermixed in the Shusha and Nakhitchevan districts in the southeast as far as Erivan, which was at one time essentially a Persian city.

To the westward as far as Kars Armenians predominated, after which the population of the mountain region along the Turkish frontier and toward the Black Sea is composed of tribes still in a semi-savage state and as yet unclaimed by civilization, and likely to remain so for some time, the governments on either side of the border line being themselves a good way from being civilized.

In the matter of resources it is difficult to say what the Transcaucasus has not The troubles at Baku, of which the cable brings news from day to day, are making the world at large acquainted with the vast wealth of that oil region covering only a few square miles in area.

Not many years ago the length of the pipes laid to bring down the crude oil to the refineries and tanks at Baku from the oil fields exceeded eight thousand miles, and they were all of German manufacture. Baku itself was gradually assuming in the newer quarters the aspect of a western European city, but the Tatar and Persian quarters, with the remains of the old temple of the fire worshipers, remain about what they were many generations ago.

It may be said generally of Baku and its vicinity what the Ancient Mariner said the ice, with variation, "The oil is here, the oil is there, the oil is all around."

The locality is oil soaked; the air is saturated with petroleum vapor; people think oil dream oil, and all the interests of the Transcaucasus may be said to have centered in oil since the first well yielded the precious

Spouting wells were rare, the most celebrated being on the Nobel estate, which ran for more than two years at the rate of some thing like 40,000 poods (36 pounds to the pood) a day. There were others, but only of a few weeks duration, when they had to be worked by the ordinary bucket pump.

On very calm days on the Caspian, near where the old fire worshipers' temple is situated, the oil gas bubbles up to the surface of the water and may be set on fire, which gave rise to the ancient tradition of the water burning. Of other mineral there are coal, iron, copper, arsenic, small quantities of gold and silver, manganese and salt in vast deposits of every grade This last is found and worked in the range of hills stretching westward from Mount Ararat, at a place called Khulp. Some of the salt is so pure that there may be seen at the Museum at Tiflis a piece, a meter cube, so perfectly transparent that the title of THE SUN, at the head of the first page, could be read through it without

As in Turkey, India and other Eastern countries, salt is a Government monopoly. Copper is mostly found and worked in Shusha district toward the Persian frontier, where there have been disturbances. Nakhitchwan, in the same part of the country, was the birthplace of the late Mme. Blavatsky, the head of the Theosophist cult. Coal is found toward the Turkish frontier on the southeast, but the population is so sparse that the absence of demand for it and the want of means of communication causes it to remain unworked.

Whenever peace is restored in the Russian and Turkish territories and civilized governprincipal is Tiflis, the old Georgian capital ment is instituted, no part of the world which the Russians have made the per- will offer greater inducements to enterprise and the investment of capital. The mountain streams and torrents alone contain sources of wealth never yet estimated through the Dariel Pass, which is said to be in their power to generate electricity that could be applied to industry and trans-

portation. Turkish and Persian territory are also not sians, with such Georgians and Armenians without interest to the sportsman. Bears, ibex and other large game are still in conministration. During and previous to the siderable numbers; in the season quails Russo-Turkish war of 1877 the most promi- abound, and so do waterfowl about the nent among the Russian commanders were numerous ponds and lakes. In the lakes, Armenians. The most conspicuous were especially in the great lake Gokcha or Sevanga, which is about 6,700 feet above the zerum, and Tergukasoff, the victor at level of the sea, on the road between Tiflis Aladja Dagh, the decisive battle of the cam- and Erivan, are to be found splendid trout up to six or seven pounds weight. In mountain streams, as at Borjom, the summer resort of the Grand Duke Michael. the fly-fisher would find a paradise of sport,

To the antiquarian and historian there is a mine of wealth to be explored. The ruins of Anni, the ancient capital of the Armenian kings, are easily reached from Kars: and at Etchmiadzin, the seat of the Armenian Catholicos, the universal head of the Gregorian church, there are stores of manuscripts yet untranslated relating to

CANADA'S DIAMOND FIELDS.

PRECIOUS STONES LONG KNOWN TO EXIST THERE.

Diamonds Found by Modern Prospectors and Also by Prehistorie Inhabitants in the District Between the Great Lakes and Hudson Bay-A New Kimberley?

FORT FRANCIS, Ont., Sept. 23 .- Old minng men and prospectors in this region did not need to be told by Dr. Ami of the Geological Survey that great diamond wealth lay hidden in that part of Canada between the Great Lakes and Hudson Bay In the Rainy River district, and in the auriferous valley of the Seine many diamonds have been obtained from Indians and French-Canadian voyageurs, who had picked hem up in their wanderings without any dea of their character and value.

At the hamlet Mine Center, in the Seine River country, George R. Douglass is the resident agent and assayer for the Rothschild interests. Mr. Douglass was long a esident of South Africa. He says the geological conformation of the Rainy Lake and Seine territories is almost identical with that of the Kimberley district, which has given to the world the famous diamond

Forty miles from the mouth of the Big Fork River, which empties into the Rainy from northern Minnesota, are many ancient mounds whose origin extends beyond the traditions of the Ojibways. Until recently these mounds were inviolate, for they are in a wild region but little visited

y white men and reached only by canoe. One summer, however, a party of scientists from the University of Toronto came out to explore them. From one of the mounds on which a sturdy oak was growing a large uman skeleton perfectly preserved was exhumed

It was not that of an Indian, and in the cavity whence it was taken were evidences of prehistoric civilization, in the form of artiles of pottery, some stamped with unique and beautiful designs. Around the skeleton's neck was a massive band of pure copper, and on its bosom rested a curiously wrought necklace of the same metal, into which were interwoven shells and colored

What arrested the attention o' the ex ploring party, however, was a stone which leamed from the center of a pendant to the necklace. At first it was judged to be nothing more than a clear piece of quartz, but closer examination and testing proved that it was a diamond.

Although half a dozen mounds were pened up before the party left the region. and copper ornaments and pottery were found, with skeletons in all of them, no more diamonds were unearthed.

On their return the party met a band of jibways, to whom the articles found in he mounds were shown, in the hope of btaining traditions concerning their origin. As to the copper the Indians were ignorant, but they grunted disdainfully when the pottery and the diamond were

Specimens of the former, they said, could be obtained in almost any quantity from the remains of an ancient pottery works that once existed on the banks of the Big Fork, near the Big Falls, a few miles up the stream, while in the same region glittering stones of the sort the palefaces seemed to regard so highly had frequently been found.

Startled by the information, the Toronto party pushed on to the Big Falls, which marked in old days the disputed boundary between the Hudson's Bay Company and John Jacob Astor's American Fur Company. There they found an old hermit squatter. Dan Campbell.

He took them to the ancient pottery field opposite his cabin, and, what was more, brought from a pouch which he brilliancy greatly exceeded the one found by his visitors. These stones he had found the course of his thirty years living by the Big Fork while scratching the surface of the pottery field with his hunting knife. Old Dan had no idea that his finds were

anything more than quartz, despite the care with which he had preserved them. So skeptical was he of his visitors' assertions that the stones were diamonds that he entrusted them to their care to be appraised in Toronto and their value sent to him. Nor were the party mistaken in their judgment. The four stones were pronounced to be real gems of an aggregate weight of twelve carats and worth \$2,500.

Mr. Douglass was sitting in the trading post at Mine Center one afternoon when a young buck and his squaw entered to exchange pelts for provisions. They had come by canoe fifty miles down the Seine

Strapped to a birch bark frame the mother carried a pappoose on her back. She took off the frame and leaned the mummified looking youngster against the counter while she joined in her husband's dickerings with the storekeeper.

Mr. Douglass noticed that the young

Armenian Church. There are also blocks of the hardest stone, some of them covered with beautifully executed inscriptions in the cuneiform character that were not deciphered a few years ago and that were unearthed near Aralyk, a place at the foot of Mount Ararat.

The great mountain itself is of course an object of deep interest, owing to its associations. Seen from the westward it stands out in solitary grandeur, rising cone shaped for 14,000 feet out of the plain, which itself is only a few hundred feet above sea level. In the clear morning at sunrise the ice and snow covered top is impressive in its steel blue color, and nothing can exceed the magnificence of the misty roseate hue when the setting sun casts its last rays over the massive moun-

Contrary to the general idea, local tradition places the site of the settling of the of Noah not on the summit of the greater Ararat but in the hollow of the saddle between it and the lesser mountain bearing the same name. Seen from the north the view of the two mountains, with their symmetrical forms, the lesser to the east, 10,000 feet in height, the other 4,000 feet higher, with a graceful dip between, in which the Ark is said to have reposed, is singularly impressive, both in its natural

aspect and because of its associations. Curiously enough, no rivers of any consequence take their rise in these mountains. the water from the melting snows being lost in the great crevasses of the interior and issuing no one knows where. The ascent of the great Ararat is always attended with difficulty, owing to the rarefaction of the atmosphere affecting the breathing. In 1889 of a Russian party that made the ascent only about one-fourth reached the summit, the rest having dropped off at various altitudes as their respiration became affected.

With the advent of better and settled times the Transcaucasus should become a great field for tourists, antiquarredskin held something firmly in his hand, which every now and then, after gazing upon it, he attempted to put into his mouth

but was prevented by the vigilant mother Curious to see what kind of toy the Indian baby had Mr. Douglass pried open his little brown first, and there lay scintillating a diamond as large as a hazel nut. There

ras no mistake about it. In astonishment he inquired of the squaw where she found the gem.

"Oh, it," she replied, contemptuously, in her guttural tongue. "My man picked it up when he was getting the poles for our ee up the river."

Douglass pulled out a twenty-dollar bill and offered it to the squaw for the stone. But paper money has little significance for the Ojibway in the wilds.

A gleam of avarice shot into the squaw's yes and tightened the corners of her mouth she saw how anxious the white man was get her baby's plaything.

She shook her head and grunted a decided negation. Douglass smiled, for he knew the Ojibway character. "Give me all the chicken feed you've got," he said to the trader.

The storekeeper emptied a sack on the ounter, containing about \$10 in small change. The squaw's eyes and those of the buck glittered. "Here," said Douglass, as he shoved the oins toward them, "give me the stone."

In a trice the mother snatched the gem from the pappoose and tossed it over to Douglass. The diamond was itaken to Toronto and appraised, valued at nearly To Rainy Lake town drifted Jim Ropes.

a prospector for the yellow metal, after spending the money he had obtained by sale of a gold mine discovered by him Michigan, and also known by his name. Ropes's days of activity were nearly over, and about the best he could do was to pass judgment on samples of quartz brought him by less experienced prospectors. One day a thirsty French-Canadian squaw man named Le Fèbre came to the

camp from the Seine district. On his gaudy brass watch chain hung a sparkling stone which he had made into a charm by twisting some wire about it. He ran into Ropes in the barroom of the hotel of the camp, and with ugly demeanor demanded that Ropes buy him a drink.

The old prospector's eyes had caught sight of the stone dangling from the squaw man's chain and another glance was suffi-

"That's a pretty piece of quartz you've got there," remarked Ropes quietly. "If you'll give it to me I'll buy all you the drinks

The man glowered at the prospector for an instant, undecided whether he was being guyed, but Ropes's countenance was serious. Le Fèbre tore the stone from its setting and snapped it over to his companion with a loud guffaw.

"By gar, I guess youse want it worse dan do," he remarked. "Now let's get those drinks pretty damn quick."

In two hours La Fèbre was snoring in a drunken stupor on the floor of the shack, while old Ropes with his purchase was paddling to Fort Francis, thence to make his way back, the worse for wear and poor whisky, but carrying in his pocket a part of the \$1,500 for which he had sold the diamond that had cost him a bar bill of 85

SPYING ON RIVAL SHOPS. Secret Service System in Use in Most of

the Big Stores. The opening of a season, when the foreign models are first displayed, is the time when the secret service employees of the stores are kept busy. The secret service employee is generally taken from the regular sales force of the establishment, though sometimes outside persons also are employed. Men, generally, are sent to the wholesale houses and usually pass regular sales force of the establishment, outside concern, but wherever a woman can do the business she is selected.

A merchant, in speaking of this practise recently, said:

"We simply have to resort to some such means in self-defense. For instance, if we pay a large price for some exclusive model and a purchaser comes in and claims to have been shown its exact duplicate at a rival house for a less price, do you think the customer's word is taken without investigation? No, indeed, Such a remark is immediately reported to head quarters and a secret service employee is at once sent to the store quoted by the

"It is simply astonishing how many utter falsehoods are told by eminently respectable women. The moment they want to buy a thing they seem to lose all sense of honor. It is a very common thing to have customer name a certain store as having this or that garment exactly like that carried by us and at a less price. Investigation often proves that they have no such model and have never had such a garment

in stock. "Ordinarily our saleswomen do admirably for this sort of thing, but when the investigation is to be along the line of expensive evening gowns, real lace robes and that sort of thing, it is difficult to secure the services of just the right person. One season, however, we found a prize in a young widow who found it necessary to add to her income. She was young and beautiful and her appearance suggested luxury in the highest degree. She chose the rôle of a prospective bride and began early in the fall to prepare for her Easter wedding. There was not much that escaped her in the shops that winter.

"Her method disarmed any possible suspicion. She would openly jot down prices, colors, styles. &c., using for this purpose an elaborately mounted chatelaine tablet. She took in everything from outside garment, hate, evening and reception gowns, down to imported negligees, and even underwear. She could not play this game more than one season, however, she was so conspicuous."

When the person chosen for an errand of this sort is a saleswoman of the store, she is taken from the department carrying such goods as she is in quest of. Usually she has one special garment in mind, but she has one special garment in mind, but she may be shown dozens before the one she is looking for appears. Knowing the quality of the stock carried by her own house, she can tell by the mere touch of the fabric whether it is identical. Some-times the lining will be of an inferior quality, which would at once account for the difwhich would at once account for the difference in price quoted by a customer. It is just such small roints which must be noted and reported. It is not always easy to withdraw without purchasing especially if one visits the same establishment several times, but a versatile woman can always find a loophole for escare.

A fashionable dressmaker and importer bringing over a large number of models each season, when asked if she was obliged each season, when asked it she was obliged to resort to this practise, said:
"I most certainly do. If I did not make such investigations my customers would, and it is much better to have reports reach

me through my own employees. Although all my models are purchased under a guarantee that no duplicates will be furnished to the trade. I find that the good faith of the average Paris designer is not to be dereated upon." There is another side to this subject of

secret service. Sometimes an outsider is hired to come in as a customer, with the real purpose of criticizing the manner of the clerks and the way goods are shown. TRINIDAD'S ASPHALT LAKE.

VISIT TO THE SOURCE OF MUCH OF OUR STREET PAVEMENT.

Queer Mining Carried On in West Indian Island -The Lake's Bottom Not Yet Reached-A Negro's Experiment-The Lake Dreary, but a Valuable Asset.

BRIGHTON, Trinidad, Sept. 14.—To-day we visited Pitch Lake, one of the natural wonders of the world, but rarely visited and little known. Its location and surroundings are not such as to recommend it to the tourist, although Brighton as the crow flies is but twenty-five miles from Port of Spain, one of the most attractive ports of the West Indies.

This Trinidad lake of pitch and the Bermudez lake in Venezuela supply the bulk of the asphalt of commerce, and since the recent nullification of the Bermudez conby President Castro, backed up by the Venezuelan Supreme Court, the Brighton lake has taken on added importance.

Brighton has no claim to existence asid from the bituminous pitch that nature here sends bubbling up from the bowels of the earth. The lake is about a quarter of a mile from the steamship pier. Nearby are quarters for two hundred native workmen, a refining plant, offices and quarters for the half dozen Americans representing the company; and that is all, except for the fierce tropical sun eternally beating down, and the sharks that play in the harbor.

But as a natural curiosity and as a com mercial enterprise the lake is of absorbing interest. Imagine a huge asphalt plaza of more than a hundred acres, softened by the sun, overgrown in spots with weeds, covered after a rain with pools of water, and you have the famous pitch lake-a big black semi-solid pond of asphalt, with a surface fairly firm and apparently placid, but in reality treacherous and eternally in

Around the edges rins a tramway with an endless cable hauling the loaded cars to the refinery and bringin ' the empty ones back again. Along this line, where the pitch is hardest, all the mining of the product is done-the black workmen digging it out with pick and shovel.

It is necessary to shift the scene of operations only along the line, never toward the center, as in two days time the slowly moving viscous mass of pitch continually flowing from the center has refilled the excavations and made them ready for the workmen again. Every day the rails of the little tramway are lifted and the slowly sinking ties moved a few inches one way or the other in order that the railway may not entirely disa pear in the bottomles

Bottomless it may well be called, for soundings have been made until with no bottom at 140 feet the pipes and sounding apparatus have been crushed and swal lowed up, to be disgorged months later The mining of the product is lowering the level of the lake at the rate of about six inches a year.

The center of this huge volcanic crater is the source of supply. Here we see the pitch boiling up in almost a purely liquid state, spreading out over the lake in dozens of streams, gradually hard ning and imperceptibly flowing toward the boundaries in an attempt to find a level. Except for a space at the center, which you might cover with a mackintosh, one may safely walk over the entire surface of the lake; and even at the center, as the superintendent demonstrated to us, you may, if you care for that sort of thing, run forward, dig out with your fingers a handful of the warm pitch for a souvenir and retire in great haste without sinking more than ankle deep

heroically offered himself for an experi-ment designed to ascertain how long it would take for a man to become engulfed in the pitch. For more than an hour he slowing sank until only the upper part of his body remained in sight and then his companions. in a burst of cruel humor, made as if to leave him to his fate. His vociferous appeals for mercy melted their hearts. Planks were thrown out over the pitch, as they are used in rescuing a skater who has broken through the ice, and after an hour's hard work the victim was once more free and

happy.

The output of the lake last year was about 140,000 tons. Most of the product is shipped northin a crude state. The cars of pitch are picked up from the cable way as they come from the lake by an overhead trolley line, run to the water front and dumped into the

holds of chartered steamers.
The asphalt hardens in the hold and has The asphalt hardens in the hold and has to be dug out with picks when the cargo is discharged. A small amount of the product is refined on the spot by a steam process and shipped to South American ports, ready for use in paving. The refined product represents a loss of 28 per cent. of the ude, principally water.
The lake is a valuable source of revenue
the island government

to the island government. An export duty of \$1.25 a ton and a royalty of 40 cents a ton, the terms of the concession, put nearly puarter of a million dollars a year into the sland treasury. The entire concession is about 2,000 acres, and asphalt is found throughout the whole locality. The land is fertile and some of it is now being used with success for the cultivation of fruit. The New Trinidad Asphalt Company, an American concern, controls both this concession and the recently abrogated Bermudez concession in Venezuela. The Trin-

idad property has several distinct advan-tages over the Bermudez Lake. The possibility of exhaustion of the former eems more remote—the Venezuelan lake. seems more remote the Venezuelan lake, although ten times the area, is but thirty feet deep. Its surface is submerged in

feet deep. Its surface is submerged in water, rendering the extraction of the product more difficult, and a forty mile haul to the seacoast adds to the cost of placing it on the market.

For the preparation of paving and roofing materials the Trinidad variety has been found the better adapted, but the purer Venezuelan article is used largely in the preparation of varnish. Danger attends the shipping of the Bermudez pitch in bulk in the holds of the steamers, as the slightest list holds of the steamers, as the slightest list to one side or the other tends to cause a disastrous flow of the pitch to that side. The Trinidad manager of the asphalt company and the clerks in the offices, all down on the pier, where cooling breezes from the Gulf of Para drive away the mosquitoes and mitigate the heat.

STATES WITH MANY COUNTIES. Georgia Has Added to Her List-Texas Still a Record Breaker.

The Georgia Legislature, which recently adjourned after a long session, made a further addition to the number of counties in the Cracker State, bringing up the whole number from 137 to 145.

New York with its great population is able to get along with 61 counties, while California, more than double the size of Georgia, gets along with 57. political necessity there can be independent counties in Georgia.

each with a separate government, organizaeach with a separate government, organization and expense, is a problem, but perhaps the reason is the same which has added to the number of counties in Texas until there are now 248. In one of them at the Presidential election of last year only 22 votes were cast, in another 120, in another 180 and in a fourth 60. The propensity to create counties in the South and Southwest has always been marked. There are 78 has always been marked. There are 76 counties in Mississippi, 119 in Kentucky, 75 in Arkansas, 45 in Florida and 96 in Ten-

## HE ECLIPSE AS SEEN IN SPAIN

American Astronomers at Daroca Favored by Fine Weather - Many Photographs Secured - Points About the Sun Eclipses May Help to Clear Un.

DAROCA, Spain, Sept. 4.—The total eclipse of the sun has come and gone and has left behind it a train of happy memories of serene skies and of splendid work accomplished. What a wonderful confidence man has in his own ability when he will travel thousands of miles in order to make observations for only a few minutes!

On Wednesday, August 30, the moon came in between the sun and the earth. and for a short space of time the light of old Sol was taken away. At sunrise the shadow cast by the moon touched the earth's surface in Manitoba, in Canada. This shadow moved eastward over the

earth's surface, owing to the motion of the moon in its orbit and the revolution of the earth on its axis, at a rate of speed of nore than a thousand miles per hour, and by s in the morning it had reached the shores of the Atlantic in Labrador. After crossing the ocean Spain was reached shortly after

It was in Spain that most of the astrono ners were located in order to make their observations on the sun, but even there only within a track 120 miles in width was possible to see the sun totally eclipsed. n this narrow path were many scientists. attracted by the clear skies that Spain promised and by the fact that the eclipse had a greater duration there than any-

The moon's shadow after passing over Spain cut through the Mediterranean, then through northern Africa and Egypt and left the earth's surface at sunset in Arabia, on the shores of the Indian Ocean.

What a wonderful sight a total eclipse of the sun is. It is worth traveling thousands, many thousands of miles to see. The writer of this article was sent out by the United States Government as a member of the expedition under the direction of Rear Admiral Colby M. Chester, superintendent of the United States Naval Observatory, Washington. The United States flagship Minneapolis, the United States steamship Dixie, and the United States steamship Cæsar were put at the disposal of the Admiral to assist the astronomers in their important work.

These three ships left the United States oward the end of June and met at Gibraltar about July 15. From there the Dixie went to Africa with the astronomers Jewell, Dinwiddie and Gilbert on board, and the Minneapolis and Cæsar took up their positions off the coast of Spain in order to assist with their observations the parties ent ashore.

Two separate localities were chosen in Spain, one near the city of Valencia, the ther at Daroca in Aragon. The main instrument of the former station was a huge camera, sixty-five feet in length, in the hands of Prof. Littell and G. H. Peters of the Naval Observatory.

At the ancient city of Daroca, where there is a Roman town more than 2,200 years old, was located the main station of the Government expedition. Here on the day of the eclipse were Prof. Eichelberger. Dr. Mitchell, Mr. Towell, Mr. Hoxton and officers and men of the flagship Minneapois, about thirty-five altogether, busy making observations on the wonderful phenomena of the total eclipse

For days and weeks beforehand the as- together the two nations so lately engaged tronomers and half a dozen sailors from the Minneapolis had been active in setting up the telescopes, cameras and spectroscopes, in adjusting them carefully and in getting everything in readiness for the three minutes and forty-five seconds of the total eclipse.

Cameras of various kinds and sizes were used. One was forty feet in length, capable of making a picture of the sun about four inches in diameter: another had a lens six inches in diameter, but was of very short focal length. These different types were for the purpose of photographing the corona in all its detail.

One of the defects of photography is that the same plate will not give an accurate record of the whole phenomena. If a long exposure is given to procure the faint extensions of the beautiful corona, the parts close to the sun will be much overexposed and will be burned out on the plate. was necessary to photograph with cameras of different styles and to give exposures of various speeds. All of this was carefully

As a result of the experience gained by the writer at the eclipse of 1900 in Georgia. and at that of 1901 in the East Indies, there were placed under his direction some of the most powerful spectroscopes ever used at an eclipse. With these instruments it is possible to tell the gases that go to make up the atmosphere of the sun, what these gases are, how high they extend in miles above the surface of the sun, what their probable temperature is, &c., problems that are exceedingly important to the

In the weeks previous to the eclipse the apparatus was set up and carefully adjusted. For three days before August 30 all hands officers and men of the flagship Minneapolis and the astronomers, went through frequent drills in order to make every one familiar with their work on eclipse day, thus insuring that no one would get nervous and excited at the critical moments of totality.

"Sunny Spain" has indeed lived up to her reputation and on the important day gave weather that has filled the hearts of the astronomers with gladness. Clouds were present but at the precious moments none was near the sun.

At Daroca a few seconds before the time predicted, at 11:51:59, a shadow was seen on the western limb of the sun. This shadow, the moon, gradually covered up more and more of old Sol. About ten minutes before the sun was entirely covered. at 1:12:30, the earth began to look weird and

The landscape appeared as if a violent storm were about to take place, all nature seemed hushed and quiet as if in preparation for some great catastrophe, and birds and cattle, thinking that night was approaching, prepared for rest. shadows underneath the trees of being little spheres assumed the unnatural shapes of little crescents which were indeed exact counterparts of the sun itself.

But while we were watching these things an immense shadow approached over the ground at terrific speed, and the sun was entirely obliterated. But oh, the magnificence of the sight that flashed out in that instant!

Around the place where the sun ha there stretched out on all sides a delicate pearly light, the wonderful corona or crown of glory of the sun. This is indeed the most beautiful of natural phenomena.

Words cannot express the infinite beauty of its filmy wisps of light, with the delicate tracery of its curves and streamers.

The form of the corona was exactly as predicted beforehand by the astronomers At the eclipse of 1900, seen in the United States, the corona extended in the form of a fishtail on either side along the sun's equator, and stretched out a distance equal to three or four diameters of the sun. However, at this latest eclipse there was no equatorial extension, but it was more or ees square in form. The shape of the corona has some peculiar connection, not fully understood, with the number of spots on the sun.

Darkness lasted for only three minutes and forty-five seconds, and with the first reappearance of the edge of the sun at 1:16:15 the corona disappeared and the observations of the eclipse were practically

Thanks to the assistance of the officers and men of the U. S. S. Minneapolis, al observations were made without a single hitch of any kind, and the whole program was successfully carried out. Since most of the work was photographic, it is too early at the present writing to tell the whole results. When the plates are developed and are examined carefully at home much valuable information will indoubtedly be gained.

After all is said and done, we may ask, 'cui bono?"-what is the purpose of these long trips and this expenditure of time and money?

The object is to learn something about the sun, the origin of our light and heat. the cause of our very life itself. Recent observations at the Smithsonian Institution, Washington, have shown that the sun is not sending out, as had hitherto been supposed, a constant supply of heat, the amount varying altogether about 10 per

This is a very remarkable fact. It is not surprising to learn that as a consequence the temperatures all over the earth vary in parallel lines, a connection which is definitely proved by meteorological observations taken throughout the north What causes this change in the amount

of the sun's heat? Other observations taken at Washington seem to show that it is caused by the varying effect of the sun's atmosphere, for sometimes this absorbs more heat than at others. It is extremely important then that we

should learn more about the action of the sun in order the better to understand terrestrial phenomena. Eclipse observations are for the purpose of solving these problems, which are not only interesting to the astronomers, but also have an immense practical application. Too much cannot be said of the exceed-

ingly friendly attitude of the Spaniards. Each one with whom we came in contact, officials and common people, did everything in his power to further the work of the astronomers, and much valuable assistance was cheerfully given. If the eclipse party sent out by the Government had obtained no scientific results whatever the expedition nevertheless would have been very valuable in binding closely S. A. MITCHELL. in war.

## THE YANKEE SCHOOLMARM.

Southern Tourist's Tribute to a Type of Woman Famous in New England. "I reckon New England will have its schoolmarm as long as its rock bound coast lasts." said a Southern tourist. "I traveled miles in the first Colonies during the last summer and I met these women in towns, at the crossroads and in the hamlets. I don't mean the present day schoolmarm, but the precise, colloquial and trim old lady whose active work is

"I recall one, and she was a type of many. The trolley car had stopped at a crossroads out in the country. An elderly woman, whose cheery face illuminated a Quaker bonnet, had hailed the motorman. "She lifted a telescope case to my seat

and I assisted her in boarding the car. She thanked me in such a sincere way that I felt as if I was again in Dixie. "After she had paid her fare she noticed that I was interested in an old cemetery

which the car was passing. I had asked a fellow passenger the name of the place. He didn't know, but the old schoolmarm knew, and she told me. "She also mentioned the names of some of the dead-names with which the whole country is familiar. When I thanked

her she asked in the most precise manner if I was a stranger in that part of the country. I told her it was my first visit. Then she took the role of guide. Not crossroads without its bit of history. Every farmhouse was familiar.

"'I have spent one or more nights in every farmhouse in this county,' she said. taught school hereabouts for thirty years. Every house contains a bit of history which to me is sacred.'

"Just then another farmhouse was passed. It was about a mile from the road. Pointing it out, she said: "'I attended two funerals and two wed-

dings in that house, and I expect very soon to attend another wedding there. I boarded there when I was a teacher. a mile back, and the two children, a boy and girl, were my pupils.

"'First their mother died and a year later the father. Both are buried in the old graveyard we just passed. The daughter married in the old homestead and I was her bridesmaid. She would have it that way. "Then her brother married and as a

matter of sentiment his wedding occurred matter of sentiment his wedding occurred in the same house. I was at that ceremony. His daughter, representing the third generation, is to be married beneath the roof a few weeks hence.

"A few minutes later an acquaintance of the schoolmarm boarded the car, and I learned from their conversation that the schoolmarm was penaloned by the school

learned from their conversation that the schoolmarm was pensioned by the school board and that she is now engaged in some sort of missionary work for her church.

"A little further on the car stopped in the woods. I noticed that the conductor did not give the motorman the bell. The latter knew where to slow up.

"The schoolmarm arose from her seat. I was up in an instant, lifted her telescope from the car and then assisted her down. I wish I had a picture of the stately courtesy she made. And I wish I had a phonograph cyclinder of her correct speech of thanks.

"As I boarded the car I looked back. A girl with the most radiant face I ever saw.

girl with the most radiant face I ever saw, in a gown of summer lawn, with her hair plaited in rustic fashion and tied with blue ribbon, met the schoolmarm and relieved her, of the telescope baggage. Then they disappeared down a winding path."